

Risk factors and reporting status for attempted Suicide: A hospital-based study

Abstract

Context: Suicide is a major public health problem and ranks second among the leading causes of death in both genders in 15-34 years. Suicidal attempts are 20 times higher than the completed suicides. **Aims:** The aim was to identify background risk factors and precipitating factors for suicide attempts in Pondicherry district and to find out the reporting status of suicide attempts. **Settings and Design:** Hospital-based descriptive study. **Subjects and Methods:** 200 subjects who have attempted suicide from JIPMER and Indira Gandhi Government Hospital and Post Graduate Institute Pondicherry were interviewed. Monthly data on attempted suicide were collected from Crime Record Bureau of Pondicherry and Villupuram district and Medical Records Department of these two hospitals was collected. **Statistical Analysis Used:** SPSS version 16.0 was used. Chi-square test was used to test the significance of the difference between two proportions. **Results:** Most common precipitating factor found among those who attempted suicide was verbal abuse, most often by parents (31.9%). The most common mode of suicide attempt was consumption of chemical poison in 56% of subjects followed by plant poison 41.5%. The suicide intention was high in 81.5% of subjects. No significant difference in risk factors could be found between subjects from Pondicherry and villupuram district. It was found that there was gross under-reporting of attempted suicides to Crime Records Bureau. **Conclusions:** Measurement of suicide intention enables us to predict the future suicidal behavior in adults; individuals with a high suicide intent index pose a major public health problem. Hence, there is a need for opportunistic screening of those with suicidal ideations as well as counseling and follow-up of those with suicide attempts to prevent further attempts.

Key words: Poisoning, Pondicherry, suicide attempt, suicide intention, suicides, Tamil Nadu

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INTRODUCTION

Suicide is a major public health problem and a leading cause of death worldwide. Every year, approximately 1 million people commit suicide.^[1] Suicide ranks second among the leading causes of death for both genders in the age group of 15-34 years. This represents a massive loss of young, productive manpower to societies.^[1]

Globally, there is an increasing trend of a suicide rate from 10 per lakh population in 1950 to 18 per lakh in 1999.^[2] In India, there is an increasing trend from 10.4 per lakh in 2003 to 10.9 per lakh in 2009. In 2009, the suicide rate in Tamil Nadu was 21.5 per lakh which is twice the National level. Pondicherry recorded the highest suicide rate of 47.2 per lakh population in 2009; which is 4 times the national rate.^[3,4] Even though Pondicherry and Tamil Nadu are neighboring states, the reason for the wide disparity in the reported rates is not known.

Suicidal attempts are 20 times higher than the completed suicides.^[1] Globally, the estimated suicidal attempts per year was 9-36 million.^[5] There is one suicide attempt for every 3 s in the world.^[1] In India, prevalence and incidence of suicide attempts are 0.8% and 5.36% respectively.^[6,7] For each suicide, there are 7-10 suicide attempts. The attempted suicide is recognized as one of the important predictor of suicidal deaths.^[8,9]

The complete burden of suicide attempts was highly underestimated because of the associated social stigma. Since the suicide is legally punishable crime in India (IPC 306), there is a threat of under-

reporting. Many deaths, particularly in rural areas, are not registered due to inefficient registration system^[10] and also the fear of social and legal consequences associated with suicide.

This study was planned with the objective to identify background risk factors and precipitating factors for suicidal attempts, to find the difference, if any, in the risk factors among suicidal attempters from Pondicherry and Villupuram district and to find out the reporting status of suicide attempts in Pondicherry and Villupuram district.

SUBJECTS AND METHODS

With the approval of the institute ethics committee, this study was carried out in Pondicherry region of Union Territory of Puducherry and Villupuram district, from Tamil Nadu during 2009-2010. The population of Pondicherry and Villupuram were 9, 50,289 and 34,58,873, respectively.^[29,34]

A nonprobability sampling technique was adopted based on feasibility. To minimize selection bias, the first 8-10 patients admitted with suicide attempt (who satisfy eligibility criteria) in both JIPMER and Indira Gandhi Government Hospital and Post Graduate Institute (IGGHPGI) was selected. Some months had fewer patients, and they were compensated by recruiting additional patients in the subsequent months. It was decided that 200 subjects with suicide attempts would be interviewed within a period of 1-year.

The data on suicidal attempts were collected from three sources:

1. Subjects who attempted suicide and admitted in JIPMER and IGGHPGI in Pondicherry;
2. Medical record department of the above-mentioned hospitals;
3. Crime Record Bureau (CRB) of Pondicherry and Villupuram district.

One hundred subjects each from JIPMER and IGGHPGI, who were admitted for their suicidal attempts were interviewed using pretested, semi-structured questionnaire. JIPMER, a central autonomous institute of national importance and IGGHPGI, a state government district hospital, were the two multispecialty hospitals in Pondicherry catering to all major ailments in Pondicherry and to several neighboring districts of Pondicherry like Villupuram, Cuddalore, Thiruvannamalai etc. For the purpose of present study, suicide attempt was defined as "A person who had made deliberate act of self-harm consciously aimed at self-destruction irrespective of his or her intention to die, with nonfatal outcome."^[11] After obtaining informed consent, information on the demographic profile, socioeconomic status, Bio-psychosocial detail, and precipitating factors were collected. Precipitating factor was defined as those provoking elements which elicited the current suicide attempt. Presumptive stressful life events scale^[31] and suicide intent scale^[30] were used to assess the presence of stress in their life in last 1-year period and intention to die. General health questionnaire^[32] was used to assess the presence of any psychological problem in the past 1-month and CAGE questionnaire^[33] was used to find problematic alcohol use.

Every month, the data on suicide attempt were collected from CRB of Pondicherry from December 2009 to November 2010. As the CRB of Villupuram district does not record data on attempted suicide, it could not be collected. Data on reported cases of suicide attempt from Pondicherry and Villupuram district were collected from Medical Records Department (MRD) of JIPMER and IGGHPGI every month. Data were analyzed using SPSS version 19: IBM. Chi-square test was used to test the significance of the difference between two proportions.

RESULTS

Sociodemographic factors

Among the study subjects ($n = 200$), more than half were in the age group of 20-29 years, mean age of suicide attempt was 26 ± 9.1 years (mean \pm standard deviation [SD]). Female subjects comprised about 65% of the study sample. Majority (62%) was in lower socioeconomic status, and 69.5% were from the rural area. The other baseline sociodemographic characteristics are found in Table 1.

Biopsychosocial factors

Contributing factors for suicide attempt identified were history of chronic illness (16.5%), family history of suicide or suicide attempt (12.5%), past history of suicide attempt (7%), and psychiatric illness (1.3%). For >62% of subjects who attempted suicides, there were no contributing factors. Among 70 males who attempted suicides, smoking was present in 22 (31.4%) and problematic alcohol use was present in 32 (45.7%).

Precipitating factors

The most common precipitating factor was verbal abuse 72 (36%). Of the verbal abuse, 40 (55.6%) was by parents, 23 (31.9%) by spouse, 2 (2.8%) by teacher, and 7 (9.7%) by others. Illness referred to some physically and mentally disabling symptoms such as dysmenorrhea, headache, toothache, diabetes mellitus, sleeplessness, and heart disease among females and abdominal pain, headache, and tremor in hand were among males [Table 2].

The suicide intention was high in 163 (81.5%) subjects and the mean suicide intention score was 12.8 (SD = 3.19) [Table 3]. Psychological problem was present in 120 (60%), and there was at least one stressful life events in 74 (37%) subjects. The most common stressful life event was family conflict 26 (13%) followed by large/heavy debt 22 (11%). The most common mode of suicide attempt was by consumption of poison. Chemical poison was consumed by 112 (56%) subjects [Table 4].

The risk factors for suicide attempts among the subjects from Pondicherry and Villupuram district were not found to be significantly different. Except, the subjects from Villupuram district were predominantly from the rural area (95%) whereas more than half (56%) of the subjects from Pondicherry were from the urban area. Seventy-two percent of them from Pondicherry were in class IV and V socioeconomic status.

Table 1: Sociodemographic details of study sample

Sociodemographic details	Pondicherry		Villupuram		Total	P
	n ₁ = 100	n ₂ = 100	n = 200	%		
Age in years						
10-19	19	25	44	22.0	0.578	
20-29	51	52	103	51.5		
30-39	19	16	35	17.5		
≥40	11	7	18	9		
Gender						
Male	28	42	70	35.0	0.038	
Female	72	58	130	65.0		
Domicile						
Urban	56	5	61	30.5	<0.001	
Rural	44	95	139	69.5		
Religion						
Hindu	97	97	194	97.0	0.717	
Christian	2	1	3	1.5		
Muslim	1	0	1	0.5		
Type of house						
Kutcha	34	51	85	42.5	<0.001	
Semipucca	19	28	47	23.0		
Pucca	47	21	68	34.5		
Education						
Never attended	22	18	40	20.0	0.171	
Primary	31	32	63	31.5		
Secondary	31	42	73	36.5		
College	16	8	24	12.0		
Occupation						
Non workers	51	44	95	47.5	0.220	
Homemaker	21	5	26			
Students	10	16	26			
Unemployed	21	23	44			
Skill I	40	52	92	46.0		
Skill II and III	9	4	13	6.5		
Socioeconomic status*						
I, II and III	28	48	76	38.0	0.004	
IV and V	72	52	124	62.0		
Type of family						
Nuclear	75	63	138	69.0	0.067	
Joint	25	37	62	31.0		
Marital status						
Unmarried	40	49	89	44.5	0.281	
Married	55	49	104	52.0		
Separated and widowed	5	2	7	3.5		

*Modified Prasad's for rural and Kuppaswamy classification for the urban population

Reporting status of attempted suicide

During the 1-year study period, CRB of Pondicherry reported 170 cases of suicide attempt. MRD of both hospitals reported suicide attempt from Pondicherry and Villupuram as 1129 cases and 506 cases, respectively. The rate of suicide attempts as per CRB Pondicherry was 17.88 per lakh population. The estimated suicidal attempt rate as per data collected from MRD was 118.80 and 14.6 per lakh population for Pondicherry and Villupuram district, respectively. There is gross under-reporting of suicide attempt cases to CRB Pondicherry [Figure 1].

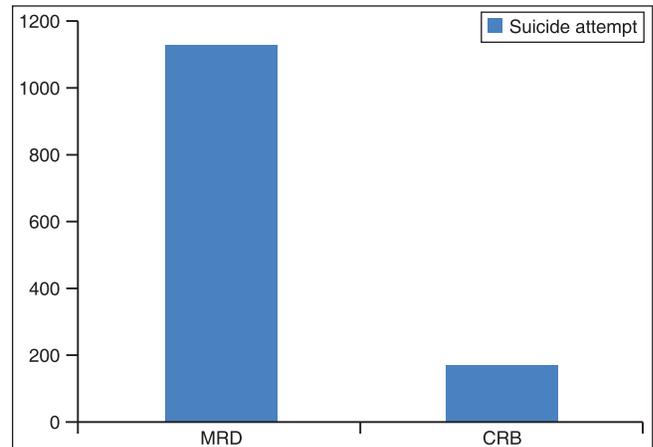


Figure 1: Under reporting of suicide attempt to CRB Pondicherry in 1 year period (2009-2010)

DISCUSSION

The commonest risk factors identified were age 20-29, female gender, rural domicile, low socioeconomic status. The most common precipitating factor was verbal abuse. These findings were in comparison with other studies.^[8,12,13,19,20] Rate of suicide attempts as per CRB Pondicherry was 17.88. The estimated suicidal attempt rate as per data collected from MRD was 118.80 and 14.6 for Pondicherry and Villupuram district, respectively.

Majority of the subjects who attempted suicide were in age group of 20-29 years. Young people are more impulsive and less experienced with critical life situations and opt suicide attempt to tide over trivial issues.^[14,15] In accordance with other studies,^[8,12,13] it was observed in the study that the verbal abuse was the common reason for suicide attempt and younger people were more sensitive and easily get offended by criticism even from their own parent or spouse. Similar to many other studies, rural community and lower socioeconomic were more vulnerable compared to their counterparts.^[19,20] The possible reason for suicidal attempts among females could be due their sensitivity towards verbal abuse. Because they are traditionally viewed as weaker and inferior gender, any abuse has a negative impact on their self-esteem.^[24,25] Adolescent friendly school initiative emphasizing life skill development is highly recommended to enhance their abilities for adoptive and positive behavior. Such behavior change enables individuals to deal effectively with the demands and challenges of everyday life.

The history of suicide attempt was present in 7%. Chandrasekaran^[22] found repetition rate of suicide attempt within 2 years of their previous attempt was 23%. He also reported that repeaters had a higher level of suicidal intent. This shows that there is a need for strengthening the counseling services for attempted suicide cases and their families in hospital to prevent further attempts. This could be achieved by strengthening suicide prevention and follow-up clinic initiative. As compared to feasibility of detecting people at risk in the community and providing counseling, it is relatively easy to prevent further attempts by concentrating on those who get admitted with a history of suicidal attempts. Repetition rate of suicide^[22] was another

Table 2: Precipitating factors for attempted suicide

Factors	Pondicherry	Villupuram	Total	
	n	n	n	%
Verbal abuse	35	37	72	36.0
Illness — intractable symptoms like abdominal pain, headache	23	19	42	21.0
Marital conflict	14	11	25	12.5
Family related problem	14	11	25	12.5
Interpersonal conflicts	4	2	6	3.0
Physical abuse	3	1	4	2.0
Others — academic failure, loss of hope in life, stress in working place, love affair, death/neglect of a spouse, influence of alcohol	7	19	26	13.0
Total	100	100	200	100

Table 3: Degree of suicide intention among attempted suicide cases

Intention to die	Pondicherry	Villupuram	Total	
	n	n	n	%
High (≥11)	81	82	163	81.5
Medium (4-10)	18	15	33	16.5
Low (0-3)	1	3	4	2.0
Total	100	100	200	100

Table 4: Methods adopted by the subjects who attempted suicide

Mode of attempt	Pondicherry	Villupuram	Total	
	n	n	n	%
Chemical poisoning	65	47	112	56
Plant poisoning	33	50	83	41.5
Physical method	2	3	5	2.5
Total	100	100	200	100

Chemical poisoning = Organo phosphorus, ant killer, rat killer, drug overdose, engine oil, bleaching powder, ala, baygon, anti-termite, floor cleaner, Plant poisoning = Yellow oleander, abrus, oduvanthalai, tuber, Physical method = Hanging

important factor which needs to be addressed at the health system itself. Counseling the subjects admitted in the hospital for suicidal attempts need to be strengthened, and that will be one of the cost effective measures of identifying people at risk and intervention.^[23]

The most common mode of suicide attempt was poisoning^[12,16,21,24] by chemicals, and it was a drug overdose^[17] for females. Women from rural area attempt suicide by plant poisons such as Yellow Oleander and Abrusprecatorious. These are cardiotoxic when ingested. Rural women belonging to low socioeconomic status are at risk for naturally available plant poisons whereas women from urban areas are at risk for drug overdose, because of easy availability and accessibility.^[18] The most common mode of suicide attempt was poisoning by chemicals because these insecticides were stored in their houses itself. Hence, there is a need for storing insecticides in a common place in villages, as done in Cuddalore district, (Tamil Nadu) instead of houses. This could be a better intervention to prevent suicidal attempts.

Eighty-one percent ($n = 163$) of study subjects had high suicide intention. As a suicide intent index was a good predictor of future suicidal behavior in adults, individuals with a high suicide intent index pose a major public health problem.^[26]

Though 37% subjects had at least one stressful life events, it was the immediate precipitating factor which was significantly associated with high suicide intention and resulted in a suicide attempt. This was obvious in most of the study subjects who had stressful life events like extramarital relation of spouse, excessive alcohol abuse by a family member, infertility, marital conflict, family conflict, and conflict with in-laws. This study emphasizes the importance of life skill development at school level and continuous counseling opportunity to the vulnerable population.

Psychological distress was present in 65.5% study subjects. Several studies^[27,28] have found that suicidal behavior was associated with psychological distress, and they are 9.5 times more prone for suicidal behavior compared to normal individuals.

The rate of attempted suicide was 17.9 per lakh population as per CRB for Pondicherry. However, data from MRD of JIPMER and GH Pondicherry alone showed the rate of Suicide attempt to be 118.8 per lakh population for Pondicherry. This revealed that there was gross under-reporting of cases of attempted suicide to the CRB Pondicherry. A possible reason could be due to the social stigma associated with the suicidal attempts and fear of legal implications; people prefer the private health facility than the government. Public-private partnership has to be strengthened to fill the gap in the reporting and counseling service delivery.

RECOMMENDATIONS AND CONCLUSION

Suicide attempt continues to be a major public health problem with a huge potential for preventive interventions. There is a need for follow-up of persons who had attempted suicide and their family members in order to prevent future attempts. As a preventive strategy, life skill training and problem-solving techniques may be regularly taught at schools to improve coping skills. Health education and public health measures for Judicial storing of potentially poisonous drugs and chemicals would help in reducing suicidal attempts by restricting access. Alleviation of the stigma and fear associated with legal punishments might result in better reporting of suicides. Therefore, there is an imminent need for certain modification in IPC 306 (suicide) and 309 (suicide attempt) is needed to make it more public friendly so that under-reporting could be minimized.

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